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PATENT
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REMARKS

This is intended as a full and complete response to the Final Office Action dated April 24, 2006, having a shortened statutory period for response set to expire on July 24, 2006. Please reconsider the claims pending in the application for reasons discussed below.

Claim Rejections - 35 U.S.C. § 112

Claims 11-19 stand rejected under 35 U.S.C. § 112, second paragraph. The Examiner states that claim 11 is rendered indefinite by recitation of "substantially homogenous populations of fibroblasts." Applicants respectfully traverse the rejection.

As described in the specification, the phrase "substantially homogenous populations of fibroblasts" is not intended to require strict purity, nor is it intended to encompass populations in which differentiation renders isolation of the desired fibroblasts impractical. Applicants submit that one skilled in the art understands that controlled, reproducible and stable differentiation does not require 100% homogeneity although cells are not allowed to differentiate randomly and uncontrollably into a mixed population. Based on the foregoing, one skilled in the art would understand the scope of the phrase "substantially homogenous populations of fibroblasts," as claimed.

Therefore, Applicants submit that claim 11 is definite and acceptable under 35 U.S.C. § 112, second paragraph. Further, claims 12-19 dependent thereon are also patentable. Accordingly, Applicants respectfully request withdrawal of the rejection and allowance of claims 11-19.

Claim Rejections - 35 U.S.C. § 102

Claims 11-14 and 19 stand rejected under 35 U.S.C. § 102(e) as being anticipated by US 2003/0119107 (*Dang, et al.*). In response, Applicants respectfully traverse the rejection.

Claim 11 recites that "differentiation occurs without reliance on composition of the cell culture medium" and furthers remains silent with respect to inclusion of cytokines and/or growth factor within the cell culture medium (see, second sentence of paragraph [0006] in the specification). In addition, claim 11 includes limitations beyond "culturing

the embryonic stem cells to induce formation of embryoid bodies." These acts include isolating the embryoid bodies, casting the embryoid bodies in a gel and growing the embryoid bodies embedded in the gel thereby inducing differentiation of the embryoid bodies to produce substantially homogenous populations of fibroblasts while embedded in the gel. Such acts to induce differentiation are not disclosed in *Dang, et al.*

In contrast to the foregoing, express teachings in *Dang, et al.* state that a matrix "does not interfere with the growth and differentiation of EBs" (paragraph 160). Thus, the matrix disclosed in *Dang, et al.* does not "influence differentiation or growth of EBs in any manner" (paragraph 168). *Dang, et al.* deals only with the formation of EBs from ES cells since the EBs emerge from the matrix once adhesion is not an issue and as previously mentioned prior to any effect on differentiation.

Therefore, *Dang, et al.* fails to teach, show or suggest each and every limitation of claim 11. Further, Applicants submit that claim 11 and all claims dependent thereon are not anticipated by *Dang, et al.* and are patentable. Accordingly, Applicants respectfully request withdrawal of the rejection and allowance of claims 11-14 and 19.

Claim Rejections - 35 U.S.C. § 103

Claims 11-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over US 2003/0119107 (*Dang, et al.*) taken with *Dani, et al.* ["Differentiation of embryonic stem cells into adipocytes in vitro," *Journal of Cell Science* (1997), 110: 1279-1285] and US 6,576,464 (*Gold, et al.*). In response, Applicants respectfully traverse the rejection.

As stated above regarding the § 102 rejection, *Dang, et al.* does not teach, show or suggest "casting the embryoid bodies in a three-dimensional scaffolding material and a cell culture medium, wherein the three-dimensional scaffolding material is a gel; and growing the embryoid bodies embedded in the three-dimensional scaffolding material and in the cell culture medium, thereby inducing differentiation of the embryoid bodies to produce substantially homogeneous populations of fibroblasts while embedded in the three-dimensional scaffolding material, wherein differentiation occurs without reliance on composition of the cell culture medium," as recited in claim 11. Further, *Dani, et al.* and *Gold, et al.* fail to overcome this deficiency in *Dang, et al.* Therefore, *Dang, et al.* in

view of *Dani, et al.* and *Gold, et al.* cannot render claim 11 obvious. Applicants submit that claim 11 and claims 12-19 dependent thereon are allowable and request withdrawal of the rejection and allowance of these claims.

Conclusion

Having addressed all issues set out in the Final Office Action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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